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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/354,640	07/15/1999	DER-HWA GAN	JNP-0007	5420

44987 7590 07/13/2006

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EXAMINER	
HO, CHUONG T	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/354,640	Applicant(s) GAN ET AL.	
	Examiner CHUONG T. HO	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6,8-21 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8-21,24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicant's arguments filed 05/08/06 with respect to claims 1-4, 6, 8-21, 24 have been considered but are moot in view of the new ground(s) of rejection.

2. Claims 1-4, 6, 8-21, 24 are pending.

3. In view of the Appeal Brief filed on 05/08/06, PROSECUTION IS HEREBY REOPENED. The new rejection set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 8, 18, 24 are rejected under 35 U.S.C. 102(e) as being anticipated by McAllister et al. (U.S.Patent No. 6,560,218 B2).

In the claim 1, McAllister et al. discloses a system for forwarding packets from a source device (see figures 1, 2, User 1) to a destination device (see figure1, 2, User 2), network including a plurality of network elements including a plurality of nodes (see figure 1, node A, B, C) (figure 2, node A, B, C, D) and connecting links, the plurality of nodes including at least one alternative-route-enable node (see figure 1, node A) (figure 2, node B) and at least one non-alternative-route-enabled node (see figure 1, node B) (figure 2, node C) (see figure 1, node B, col. 3, lines 11-17, node B detects that the Trunk Group in its Primary Route (via Node C) is shown, so its Primary Route cannot be used. Node B also detects that its Alternative Route to User 2 is the same call out the Alternative Route would therefore cause a loop and Node B therefore determine that it cannot forward the call to User 2 "Destination" and clears the call to Node A with a Release message indicating Crankback), wherein the at least one non-alternative-route-enabled node (see figure 1, node B); comprises:

- A storage space to store an initial route from the source device (see figure 1, User 1) to the destination (see figure 1, User 2) (see col. 2, lines 30-34, each network node having a local static routing table providing next hop routing information to adjacent nodes, characterized in that said routing tables define a primary route and an alternative route to adjacent nodes) (see col. 2, lines 38-45, if the primary route is not usable due to congestion or physical failure, the node then attempts to forward the setup message on the alternative route; and if the

alternative route is the same route on which the setup message is received, the node crankback the call back to a preceding node which either forwards the setup message over the alternative route defined in the node's routing table or again cranks the call back to a further preceding node);

- A mechanism to detect failure in a downstream network element in the initial route (see figure 1, col. 3, lines 11-17, the failure initial route between Node B and Node C);
- A forwarder to forward a failure message upstream (see figure 1, col. 3, lines 11-17, crankback) along the initial route to an alternative-route-enabled node (see figure 1, node A) (see figure 1, node B, col. 3, lines 11-17, node B detects that the Trunk Group in its Primary Route (via Node C) is shown, so its Primary Route cannot be used. Node B also detects that its Alternative Route to User 2 is the same call out the Alternative Route would therefore cause a loop and Node B therefore determine that it cannot forward the call to User 2 "Destination" and clears the call to Node A with a Release message indicating Crankback) (see figure 1, col. 3, lines 20-23, Node A receives the Crankback message, notes that its Primary Route didn't work and forward the call on its Alternative Route, as stored in its routing table 11, to Node C. Node C then forwards the call to User 2 "Destination" Without Crankback), the failure message causing the alternative-route-enable node (see figure 1, col. 3, lines 20-24, node A) to being forwarding packets on an alternative route.

6. In the claim 8, McAllister et al. discloses a system for forwarding packets from a source device (see figures 1, 2, User 1) to a destination device (see figures 1, 2, User 2) in a network of interconnected elements including nodes (see figure 1, nodes A, B, C) (figure 2, nodes A, B, C, D) and links; comprising:

- Determining an initial route (see figure 1, primary route A – B) (see figure 2, primary route B – C), the initial route include at least one alternative-route enable node (see figure 1 node A) (see figure 2, node B) and at least non-alternative-route-enabled node (see figure 1, node B) (figure 2, node C) storing an initial route from the source device (see figures 1, 2, User 1) to the destination device (see figures 1, 2, User 2) (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);
- Determining an alternative route by identifying the at least one alternative-route-enabled node (see figure 1, A) (figure 2, B) in the initial route, identifying downstream interconnect element (see figure 1, A – B – C) (figure 2, A – B – C – D), and generating the alternative route based on the identified at least one alternative-route-enabled node (see figure 1, node A, figure 2, node B) and the identified downstream interconnected elements (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);
- Forwarding packets on the initial route (figure 1, A – B – C) (figure 2, A – B – C – D) (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);

- Detecting a failed element (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);
- Automatically forwarding packets on the alternative route without communicating with either the source (see figures 1, 2, User 1) or the destination (see figures 1, 2, User 2).

7. In the claim 18, McAllister discloses a system for locally rerouting packets traveling on an established route when a node (see figure 1, node B) (figure 2, node C) in a network of interconnected nodes (figure 1, nodes A, B, C) (figure 2, nodes A, B, C, D) fails, the system comprising:

- Computing, at select intermediary nodes (figure 2, nodes A, B) along the established route, an alternative route leading from the select intermediary node (figure 2, nodes A, B) to the destination device (figure 2, User 2) of the established route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);
- Storing, at each of the select intermediary nodes (figure 2, nodes B, A), the alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);
- Determining locally that the established route has failed (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12); and automatically forwarding packets on the alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

8. In the claim 24, McAllister discloses a system for forwarding packets from a source device (figures 1, 2, User 1) to a destination device (figures 1, 2, User 2) and including a plurality of intermediate network nodes (figure 2, nodes A, B, C, D), the plurality of intermediate network nodes (figure 2, nodes A, B, C, D) comprising:

At least one first node (figure 2, node B) configured to:

- Store an initial route from the source device (figures 1, 2, User 1) to the destination device (figures 1, 2, User 2) and at least one alternative route from the source device (figures 1, 2, User 1) to the destination device (figures 1, 2, User 2) (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);
- Detect a failure in a downstream network node in the initial route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12), and
- Automatically forward a packet to a node on one of the at least one alternative route in response to detecting the failure (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12); and

At least one second node (figure 2, node C) configured to:

- Store the initial route, detect a failure in a downstream network node in the initial route, and forward a failure message to an upstream first node (figure 2, node B) in response to detecting the failure, the failure message causing the upstream first node to automatically forward a packet to a node on one of the at least one alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 2, 3, 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister et al. (U.S.Patent No. 6,560,218 B2 in view of Rexford et al. (U.S.Patent No. 6,633,544 B1).

In the claim 2, McAllister et al. discloses the limitations of claim 1 above.

However, McAllister et al. is silent to disclosing the network is a connection-oriented network with a plurality of established initial route.

Rexford et al. discloses the network is connected-oriented network with a plurality of established initial routes (see col. 6, lines 1-4, computing QoS routes using a source-directed connection-oriented routing environment) (see col. 6, lines 10-12) (see figure 1).

Both McAllister and Rexford discloses precomputed routes be stored. Rexford recognizes the network is connected-oriented network with a plurality of established initial routes. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister et al. with the teaching of Rexford to provide the network is connected-oriented network with a plurality of established initial routes in order to compute, store, and allocate efficient routing connections between nodes in a network.

11. In the claim 3, McAllister discloses the limitations of claim 1 above.

However, McAllister is silent to disclosing the plurality of nodes includes a label-switched router.

Rexford discloses the plurality of nodes includes a label switched router (see col. 1, lines 62-67, proposed QoS extensions to the OSPF ("Open Shortest Path First Routing") source-directed IP ("Internet Protocol") routing, MPLS ("Multiprotocol Label Switching" includes a similar technique for constraint-based routing).

Both McAllister and Rexford discloses precomputed routes be stored. Rexford recognizes the plurality of nodes includes a label switched router. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister et al. with the teaching of Rexford to provide the plurality of nodes includes a label switched router in order to compute, store, and allocate efficient routing connections between nodes in a network.

12. In the claim 15, McAllister discloses the determining the alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

However, McAllister is silent to disclosing the determining the alternative route comprises checking bandwidth allocation.

Rexford et al. discloses the determining the alternative route comprises checking bandwidth allocation (see col. 16, lines 15-22).

Both McAllister and Rexford discloses precomputed routes be stored. Rexford recognizes the determining the alternative route comprises checking bandwidth allocation. Thus, it would have been obvious to one of ordinary skill in the art at the time

of the invention to modify the system of McAllister et al. with the teaching of Rexford to provide the determining the alternative route comprises checking bandwidth allocation in order to compute, store, and allocate efficient routing connections between nodes in a network.

13. In the claim 16, McAllister discloses the limitations of the claim 15 above.

However, McAllister is silent to disclosing checking bandwidth allocation comprises dynamically balancing capacity of nodes and links.

Rexford discloses checking bandwidth allocation comprises dynamically balancing capacity of nodes and links (see col. 5, lines 34-35).

Both McAllister and Rexford discloses precomputed routes be stored. Rexford recognizes checking bandwidth allocation comprises dynamically balancing capacity of nodes and links. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister et al. with the teaching of Rexford to provide checking bandwidth allocation comprises dynamically balancing capacity of nodes and links in order to compute, store, and allocate efficient routing connections between nodes in a network.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 4, 6, 11, 12, 13, 17, 19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister (U.S.Patent No. 6,560,218 B2) in view of Masuro et al. (U.S.Patent No. 6,122,753).

In the claim 4, McAlllister et al. discloses the limitations of claim 1 above.

However, McAllister et al. discloses the alternative route does not include the downstream network element in the initial route.

Masuro et al. disclose the alternative route does not include the downstream network element in the initial route (see col. 4, lines 4-6, col. 5, lines 50-53, col. 11, lines 56-60, col. 13, lines 30-35, col. 22, lines 60-67, col. 28, lines 18-20, col. 29, lines 49-50).

Both McAllister (66560218) and Masuro disclose the failed link (or paths). Masuro recognizes the downstream network element in the initial route. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Masuro to provide the alternative route does not include the downstream network element in the initial route in order to recover faulty connection in switching.

16. In the claim 6, McAllister (6560218) discloses the limitations of claim 1 above.

However, McAllister is silent to disclosing detecting failure sends communication packets to downstream nodes at regular intervals.

Masuro discloses detecting failure (see figure 12) sends communication packets to downstream nodes at regular intervals (see col. 27, lines 45-47).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Masuro to provide

detecting failure sends communication packets to downstream nodes at regular intervals in order to recover faulty connection in switching.

17. In the claim 11, In the claim 11, McAllister et al. discloses establishing the alternative route for forwarding packets (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

However McAllister is silent to disclosing determining a shortest route from a node preceding the failed element to the destination device within the network.

Masuro discloses determining a shortest route from a node preceding the failed element to the destination device within the network (see col. 4, lines 4-6, col. 5, lines 50-53, col. 11, lines 56-60, col. 13, lines 30-35, col. 22, lines 60-67, col. 28, lines 18-20, col. 29, lines 49-50).

Both McAllister (66560218) and Masuro disclose the failed link (or paths). Masuro recognizes determining a shortest route from a node preceding the failed element to the destination device within the network. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Masuro to provide determining a shortest route from a node preceding the failed element to the destination device within the network in order to recover faulty connection in switching.

18. In the claim 12, McAllister discloses detecting a failure is conducted locally by a node preceding the failed element without requiring notification of a master server or an ingress node (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

19. In the claim 13, McAllister discloses reserving bandwidth (see col. 1, lines 20-21) available on the initial route; establishing the alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

However, McAllister is silent to disclosing generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element.

Masuro discloses generating the alternative route by invoking a routing protocol (see col. 10, lines 32-33, col. 20, lines 31-35, col. 25, lines 39-40); refining the alternative route by excluding the failed element (see col. 4, lines 4-6, col. 5, lines 50-53, col. 11, lines 56-60, col. 13, lines 30-35, col. 22, lines 60-67, col. 28, lines 18-20, col. 29, lines 49-50).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Masuro to provide generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element in order to recover faulty connection in switching.

20. In the claim 17, McAllister discloses reserving bandwidth (see col. 1, lines 20-21) available on the initial route; identifying a plurality of nodes associated with the failed element (see figure 1, node B) (see figure 2, node C) according to network configuration information (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12); establishing the alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

However, McAllister is silent to disclosing generating the alternative route excluding the failed element and the plurality of nodes.

Masuro discloses generating the alternative route by invoking a routing protocol (see col. 10, lines 32-33, col. 20, lines 31-35, col. 25, lines 39-40); refining the alternative route by excluding the failed element (see col. 4, lines 4-6, col. 5, lines 50-53, col. 11, lines 56-60, col. 13, lines 30-35, col. 22, lines 60-67, col. 28, lines 18-20, col. 29, lines 49-50).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Masuro to provide generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element in order to recover faulty connection in switching.

21. In the claim 19, claim 19 is rejected the same reason of claim 13 above.

22. In the claim 21, McAllister discloses the limitations of claim 18 above.

However, McAllister is silent to disclosing wherein determining locally that the established route has failed is conducted by a signaling protocol.

Masuro discloses wherein determining locally that the established route has failed is conducted by a signaling protocol
(see col. 4, lines 4-6, col. 5, lines 50-53, col. 11, lines 56-60, col. 13, lines 30-35, col. 22, lines 60-67, col. 28, lines 18-20, col. 29, lines 49-50).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Masuro to provide wherein determining locally that the established route has failed is conducted by a signaling protocol in order to recover faulty connection in switching.

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

24. Claims 9, 14, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister (U.S.Patent No. 6,560,218 B2) in view of Cheng et al. (U.S.Patent No. 6,600,724 B1).

In the claim 9, McAllister discloses initial route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

. However, McAllister is silent to disclosing determining a short path from the destination device to the source device within the network; refining the path according to administrative constraints.

Cheng discloses determining a short path from the destination device to the source device within the network; refining the path according to administrative constraints (see col. 12, lines 20-22).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Cheng to provide determining a shortest path from the destination device to the source device within the network, refining the path according to administrative constraints in order to select routing paths through networks.

25. In the claim 14, In the claim 14, McAllister discloses a system for forwarding packets from a source device (see figures 1, 2, User 1) to a destination device (see figures 1, 2, User 2) in a network of interconnected element (see figure 1, nodes A, B, C) (see figure 2, A, B, C, D) including nodes and links, comprising:

Establishing the path as the initial route, determining an alternative route; forwarding packets on the initial route; detecting a failed element; and automatically forwarding packets on the alternative route without communicating with either the source or the destination route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

However, McAllister is silent to disclosing determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic.

Cheng discloses determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic (see col. 12, lines 20-22, lines 42-46) .

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Cheng to provide determining an initial route by determining a short path from the destination device to

the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic in order to select routing paths through networks.

26. In the claim 20, McAllister discloses wherein computing the alternative route further comprises: locating a set of established routes with a same destination device as the established route; finding a common node, downstream from the failed node, after which the set of established routes and the established route utilized the same network elements; establishing a new route from the common node to the destination device; and incorporate the new route into the alternative route see col. 2, lines 7-12) (col. 2, lines 16-18, the total cost of the path, comprising the accumulated cost of the established path fragment together with the cost of the new path tail, must be less than or equal to the cost threshold specified in the setup message).

However, McAllister is silent to disclosing locating a set of established routes with a same administrative constraints as the established route.

Cheng discloses locating a set of established routes with a same administrative constraints as the established route (see col. 12, lines 20-22).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Cheng to provide locating a set of established routes with a same administrative constraints as the established route in order to select routing paths through networks.

Claim Rejections - 35 USC § 103

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

28. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (McAllister – Cheng) in view of Cosares et al. (U.S.Patent No. 5,546,542).

In the claim 10, the combined system (McAllister – Cheng) discloses refining the path comprises rejected the path exceeding (constraints) bandwidth (see Cheng, col. 12, lines 20-22).

However, the combined system (McAllister – Roginsky) is silent to disclosing refining the path comprises rejecting the path exceeding hop limit.

Cosares et al. discloses refining the path comprises rejecting the path exceeding hop limit (see col. 15, lines 15-17).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of combined system (McAllister – Roginsky) with the teaching of Cosares to provide refining the path comprises rejecting the path exceeding hop limit in order to minimize the bandwidth on each ring sub-component.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 8, 18, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haskin et al. (U.S.Patent No. 6,813,242) in view of McAllister et al. (U.S.Patent No. 6,697,329 B1).

In the claim 1, see figures 2, 3, Haskin et al. discloses a network system including of network element including a plurality of nodes (switches 1-7) and connecting links, the plurality of nodes including at least one alternative-route-enabled node (switch 1) and at least one non-alternative-route-enabled node (switch 3 or 5), wherein the at least one-non-alternative-route-enabled node (switch 3 or 5) comprises: a mechanism to detect failure in a downstream network element in the initial route; and a forwarding to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node (switch 1), the failure message causing the alternative-route-enabled node (switch 1) to begin forwarding packets on an alternative route (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45).

However, Haskin et al. is silent to disclosing a storage space to store an initial route from a source device to a destination device.

See figure 2B, col. 7, lines 40-53, col. 9, lines 30-45, lines 10-13, col. 7, lines 40-53, col. 13, lines 35-67, McAllister et al. discloses in the first case, for example, that the CAC processing of an intermediate node in the primary path of the the ODR SPVC reports insufficient node resources to progress the ODR SPVC through the intermediate node or a specified link thereon in which case the primary path is block. In such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node, such as a DTL-creative node (which is node 32A in the reference network), in order to compute another path to an SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node which detects the block. This node sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node over the signaling network. The protocol allows a DTL-original node, such as the source node 32A, which receives this message to re-route the connection using a different path (see col. 9, lines 30-45); comprising:

- See Figure 2B, MCALLISTER et al. discloses or suggest a plurality of nodes including at least one alternative-route-enabled node (32A, source node) and at least one non-alternative-route-enable node (32B, node) (see col. 9, lines 34-45, in such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node such as a DTL-creating node (which is node 32A in the reference network), in order to compute another path to SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node (32 B)

which detects the block. This node (32 B) sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node (32 A) over the signaling network. The protocol allows a DTL-originating node, such as the source node 32A, which receives this message to re-route the connection using a different path) (see col. 10, lines 37-44, if parallel links exist in the area of the link failure, the appropriate node's call processing means selects a link other than the failed link. The node (32B) attempts to commission its cross-connect to ensure the ODR SPVC traverse this new link as it is signaled to the next node in the primary path. If this re-route fails, the connection is cranked back to the source node (32A)).

- A network , figure 2B, for forwarding packets from a source device (20A) to a destination device (20B), network including a plurality of network element (32A, 32B, 32C, 32D, 32E, 32F, 32G, 46) including a plurality of nodes and connecting link, the plurality of nodes including at least one alternative-route-enable node (32A) and at least one non-alternative-route-enable node (32B),

wherein the at least one non-alternative-route-enable node (32) comprises:

- A storage space to store an initial route from the source device to the destination device (MCALLISTER et al. discloses or suggests a non-alternative-route-enabled node (32A, 32B, 32C, 32D, 32E, 32F, 32G) that includes a storage space to store an initial route from a source device (20A) to a destination device (20B) (see col. 45-57, adjacent network elements of the source network element, the destination network element and the each network element (32A, 32B, 32C,

32D, 32E, 32F, 32G) therebetween which is located along network path element that define the connection may automatically select any available link in the event the preferred routing indication does not identify a link to be used therebetween....The re-routing indication may include at least one alternate path indication each defining at least one network path element of the connection located between the source network element and the destination network element, the alternate path indication not being identical to the preferred routing indication));

- A mechanism to detect failure in a downstream network element in the initial route (see col. 9, lines 30-45).

Both McAllister and Haskin discloses a system of fast alternative-path automatic rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure. McAllister recognizes a storage space to store an initial route from a source device to a destination device. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of McAllister to provide a storage space to store an initial route from a source device to a destination device in order to reduce the probability of packet loss in a network.

2. In the claim 8, Haskin et al. discloses a network system including of network element including a plurality of nodes (switches 1-7) and connecting links, the plurality of nodes including at least one alternative-route-enabled node (switch 1) and at least one non-alternative-route-enabled node (switch 3 or 5), wherein the at least one-non-

alternative-route-enabled node (switch 3 or 5) comprises: a mechanism to detect failure in a downstream network element in the initial route; and a forwarding to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node (switch 1), the failure message causing the alternative-route-enabled node (switch 1) to begin forwarding packets on an alternative route (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45).

However, Haskin et al. is silent to disclosing the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device.

See figure 2B, col. 7, lines 40-53, col. 9, lines 30-45, lines 10-13, col. 7, lines 40-53, col. 13, lines 35-67, McAllister et al. discloses in the first case, for example, that the CAC processing of an intermediate node in the primary path of the the ODR SPVC reports insufficient node resources to progress the ODR SPVC through the intermediate node or a specified link thereon in which case the primary path is block. In such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node, such as a DTL-creative node (which is node 32A in the reference network), in order to compute another path to an SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node which detects the block. This node sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node over the signaling network. The protocol allows a

DTL-original node, such as the source node 32A, which receives this message to re-route the connection using a different path (see col. 9, lines 30-45); comprising:

- See Figure 2B, MCALLISTER et al. discloses or suggest a plurality of nodes including at least one alternative-route-enabled node (32A, source node) and at least one non-alternative-route-enable node (32B, node) (see col. 9, lines 34-45, in such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node such as a DTL-creating node (which is node 32A in the reference network), in order to compute another path to SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node (32 B) which detects the block. This node (32 B) sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node (32 A) over the signaling network. The protocol allows a DTL-originating node, such as the source node 32A, which receives this message to re-route the connection using a different path) (see col. 10, lines 37-44, if parallel links exist in the area of the link failure, the appropriate node's call processing means selects a link other than the failed link. The node (32B) attempts to commission its cross-connect to ensure the ODR SPVC traverse this new link as it is signaled to the next node in the primary path. If this re-route fails, the connection is cranked back to the source node (32A)).

- See figure 2B, a system for forwarding packets from a source device (20A) to a destination device (20B) in a network of interconnected elements including nodes (32A, 32B, 32C, 32D, 32E, 32F, 32G, 46) and links (34, 48, 49);
- determining an initial route (primary path), the initial route including at least one alternative-route enabled node (46) and at least one non-alternative-route-enabled node (32), the at least one alternative-route-enabled node (46) and the at least one non-alternative-route-enabled node (32) storing an initial route from the source device (20A) to the destination device (20B) (see figure 5, col. 35-67);
- determining an alternative route by identifying the at least one alternative-route-enabled node (46) in the initial route (primary path), identifying downstream interconnected elements (32A, 32B, 32C, 32D, 32E, 32F, 32G, 46), and generating the alternative route based on the identified at least one alternative-route-enabled node (46) and the identified downstream interconnected elements (32A, 32B, 32C, 32D, 32E, 32F, 32G, 46) (see col. 14, lines 8-15, col. 7, lines 40-53);
- forwarding packets on the initial route (primary path) (see col. 7, lines 53);
- detecting a failed element (see col. 9, lines 30-45);

Both McAllister and Haskin discloses a system of fast alternative-path automatic rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure. McAllister recognizes the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device. Thus, it would have been

obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of McAllister to provide the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device in order to reduce the probability of packet loss in a network.

3. In the claim 18, see figures 2, 3, Haskin et al. discloses a network system including of network element including a plurality of nodes (switches 1-7) and connecting links, the plurality of nodes including at least one alternative-route-enabled node (switch 1) and at least one non-alternative-route-enabled node (switch 3 or 5), wherein the at least one-non-alternative-route-enabled node (switch 3 or 5) comprises: a mechanism to detect failure in a downstream network element in the initial route; and a forwarding to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node (switch 1), the failure message causing the alternative-route-enabled node (switch 1) to begin forwarding packets on an alternative route (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45).

However, Haskin et al. is silent to disclosing storing, at each of the select intermediary nodes, the alternative route.

See figure 2B, col. 7, lines 40-53, col. 9, lines 30-45, lines 10-13, col. 7, lines 40-53, col. 13, lines 35-67, McAllister et al. discloses in the first case, for example, that the CAC processing of an intermediate node in the primary path of the the ODR SPVC reports insufficient node resources to progress the ODR SPVC through the intermediate node or a specified link thereon in which case the primary path is block. In such

circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node, such as a DTL-creative node (which is node 32A in the reference network), in order to compute another path to an SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node which detects the block. This node sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node over the signaling network. The protocol allows a DTL-original node, such as the source node 32A, which receives this message to re-route the connection using a different path (see col. 9, lines 30-45); comprising:

- See Figure 2B, MCALLISTER et al. discloses or suggest a plurality of nodes including at least one alternative-route-enabled node (32A, source node) and at least one non-alternative-route-enable node (32B, node) (see col. 9, lines 34-45, in such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node such as a DTL-creating node (which is node 32A in the reference network), in order to compute another path to SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node (32 B) which detects the block. This node (32 B) sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node (32 A) over the signaling network. The protocol allows a DTL-originating node, such as the source node 32A, which receives this message to re-route the connection using a different path) (see col. 10, lines 37-44, if parallel

links exist in the area of the link failure, the appropriate node's call processing means selects a link other than the failed link. The node (32B) attempts to commission its cross-connect to ensure the ODR SPVC traverse this new link as it is signaled to the next node in the primary path. If this re-route fails, the connection is cranked back to the source node (32A)).

- A network , figure 2B, for forwarding packets from a source device (20A) to a destination device (20B), network including a plurality of network element (32A, 32B, 32C, 32D, 32E, 32F, 32G, 46) including a plurality of nodes and connecting link, the plurality of nodes including at least one alternative-route-enable node (46) and at least one non-alternative-route-enable node (32),

wherein the at least one non-alternative-route-enable node (32) comprises:

- A storage space to store an initial route from the source device to the destination device (see routing table, figure 5, col. 13, lines 35-67);
- A mechanism to detect failure in a downstream network element in the initial route (see col. 9, lines 30-45).

Both McAllister and Haskin discloses a system of fast alternative-path automatic rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure. McAllister recognizes storing, at each of the select intermediary nodes, the alternative route. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of McAllister to provide storing, at each of the select intermediary nodes, the alternative route in order to reduce the probability of packet loss in a network.

4. In the claim 24, see figures 2, 3, Haskin et al. discloses a network system including of network element including a plurality of nodes (switches 1-7) and connecting links, the plurality of nodes including at least one alternative-route-enabled node (switch 1) and at least one non-alternative-route-enabled node (switch 3 or 5), wherein the at least one-non-alternative-route-enabled node (switch 3 or 5) comprises: a mechanism to detect failure in a downstream network element in the initial route; and a forwarding to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node (switch 1), the failure message causing the alternative-route-enabled node (switch 1) to begin forwarding packets on an alternative route (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45).

However, Haskin et al. is silent to disclosing store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device.

See figure 2B, col. 7, lines 40-53, col. 9, lines 30-45, lines 10-13, col. 7, lines 40-53, col. 13, lines 35-67, McAllister et al. discloses in the first case, for example, that the CAC processing of an intermediate node in the primary path of the the ODR SPVC reports insufficient node resources to progress the ODR SPVC through the intermediate node or a specified link thereon in which case the primary path is block. In such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node, such as a DTL-creative node (which is node 32A in the reference network), in order to compute another path to an SPVC destination endpoint. The P-NNI crankback

procedure is initiated by the network node which detects the block. This node sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node over the signaling network. The protocol allows a DTL-original node, such as the source node 32A, which receives this message to re-route the connection using a different path (see col. 9, lines 30-45); comprising:

- See Figure 2B, MCALLISTER et al. discloses or suggest a plurality of nodes including at least one alternative-route-enabled node (32A, source node) and at least one non-alternative-route-enable node (32B, node) (see col. 9, lines 34-45, in such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node such as a DTL-creating node (which is node 32A in the reference network), in order to compute another path to SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node (32 B) which detects the block. This node (32 B) sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node (32 A) over the signaling network. The protocol allows a DTL-originating node, such as the source node 32A, which receives this message to re-route the connection using a different path) (see col. 10, lines 37-44, if parallel links exist in the area of the link failure, the appropriate node's call processing means selects a link other than the failed link. The node (32B) attempts to commission its cross-connect to ensure the ODR SPVC traverse this new link as

it is signaled to the next node in the primary path. If this re-route fails, the connection is cranked back to the source node (32A)).

- A network , figure 2B, for forwarding packets from a source device (20A) to a destination device (20B), network including a plurality of network element (32A, 32B, 32C, 32D, 32E, 32F, 32G, 46) including a plurality of nodes and connecting link, the plurality of nodes including at least one alternative-route-enable node (46) and at least one non-alternative-route-enable node (32),

wherein the at least one non-alternative-route-enable node (32) comprises:

- A storage space to store an initial route from the source device to the destination device (see routing table, figure 5, col. 13, lines 35-67);
- A mechanism to detect failure in a downstream network element in the initial route (see col. 9, lines 30-45).

Both McAllister and Haskin discloses a system of fast alternative-path automatic rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure. McAllister recognizes store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of McAllister to provide store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device in order to reduce the probability of packet loss in a network.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

29. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister et al. (U.S.Patent No. 6,697,329 B1) and in view of Cheng (U.S.Patent No. 6,600,724).

In the claim 14, see figure 2B, col. 7, lines 40-53, col. 9, lines 30-45, lines 10-13, col. 7, lines 40-53, col. 13, lines 35-67, McAllister et al. discloses in the first case, for example, that the CAC processing of an intermediate node in the primary path of the the ODR SPVC reports insufficient node resources to progress the ODR SPVC through the intermediate node or a specified link thereon in which case the primary path is block. In such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node, such as a DTL-creative node (which is node 32A in the reference network), in order to compute another path to an SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node which detects the block. This node sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node over the signaling network. The protocol allows a DTL-original node, such as the source node 32A, which receives this message to re-route the connection using a different path (see col. 9, lines 30-45); comprising:

- Determining an alternative route; forwarding packets on the initial route; detecting a failed element; and automatically forwarding packets on the alternative route without communicating with either the source or the destination (see col. 9, lines 34-45, in such circumstances, the P-NNI signaling protocol provides a crankback procedure wherein a connection request which is blocked along a selected path is rolled back to a prior node such as a DTL-creating node (which is node 32A in the reference network), in order to compute another path to SPVC destination endpoint. The P-NNI crankback procedure is initiated by the network node (32 B) which detects the block. This node (32 B) sends a signal indicative of a blocked path, such as a connection clearing message having a crankback IE, back to the source node (32 A) over the signaling network. The protocol allows a DTL-originating node, such as the source node 32A, which receives this message to re-route the connection using a different path) (see col. 10, lines 37-44, if parallel links exist in the area of the link failure, the appropriate node's call processing means selects a link other than the failed link. The node (32B) attempts to commission its cross-connect to ensure the ODR SPVC traverse this new link as it is signaled to the next node in the primary path. If this re-route fails, the connection is cranked back to the source node (32A)).

However, McAllister is silent to disclosing determining an initial route by determining a short path from the destination to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial

route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic.

Cheng discloses determining an initial route by determining a short path (see col. 12, lines 20-22, least-cost path) from the destination device to the source device within the network, refining the path according to administrative constraints (see col. 12, lines 20-22, to determine these shortest path routes for a specified constraint (see col. 12, lines 20-22, such as the cost parameter), and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic (see col. 12, lines 20-22, this would allow for comparing other parameters of the call request (e.g.bandwidth) with the available shorthest paths to determine the shortest paths can truly satisfy the call request)

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Cheng to provide determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic in order to select routing paths through networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUONG T. HO whose telephone number is (571) 272-3133. The examiner can normally be reached on 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

07/04/06

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